

Syllabus of General Physics Laboratory II

Keywords: physics, experimental experiment, electricity, magnetism, electromagnetism, optics, and modern physics

Course Website: <http://www.phys.nthu.edu.tw/~gplab>

A. Course Description:

In addition to verifying various physical laws and physical phenomena learned in general physics courses through experiments, the General Physics Laboratory Course also trains students to be familiar with the instruments, equipment, and measurement methods, as well as the ability of experimental data analysis.

The general physics lab (I) focuses on basic physics experiments in classical physics such as basic measurements, kinematics, mechanics, and thermal physics. The general physics lab (II) will focus on electricity, magnetism, electromagnetism, basic electronic instruments, and optics. At the same time, through the implementation of experiments, students will have a rigorous attitude towards experimental research and a spirit of curiosity and willingness to learn physics. In addition, some physics demonstrations are arranged to strengthen the content of the course and enhance students' interest and scope of learning.

B. Course purpose:

1. Verify and understand the basic laws and phenomena of physics.
2. Familiar with various basic measurement tools, instruments and equipment.
3. Strengthen the knowledge and basic skills of experimental operation.
4. Learn the ability of experimental data acquisition, processing and analysis, and strengthen the ability to use data analysis software, such as learning Microsoft Office Excel spreadsheet software or related data analysis software.
5. Train the ability to write experimental reports and presentations, especially

the use of MS Word and MS PowerPoint.

C. Experimental unit:

There are nine physics labs related to electricity, magnetism, electromagnetism, and optics and three demonstration labs in this semester. The list of labs is as follows:

Lab 13 Ammeter, Voltmeter, and Ohmmeter

Lab 14 Current Balance and Lorentz Force

Lab 15 Digital Oscilloscope

Lab 16 Demonstration D: Electricity, Magnetism, and Electromagnetism

Lab 17 Electric Field and Potential

Lab 18 Refraction, Polarization, Interference, and Diffraction of Light

Lab 19 RC and RLC Circuits

Lab 20 Demonstration E: Electromagnetism and Energy

Lab 21 Helmholtz Coils

Lab 22 Michelson Interferometer

Lab 23 Atomic Spectrum and Planck Constant

Lab 24 Demonstration F: Optics and Modern Physics

D. Syllabus

The course syllabus is planned by the general laboratory. For the lab schedule, please see <http://www.phys.nthu.edu.tw/~gplab/rules.html>

E. Evaluation

The final score is evaluated based on lab reports, written examination, and class performances.